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ABSTRACT

In fall 1994, San Jose College, in New Mexico, established the Task Force on Innovation to examine changes in the paradigm of education and how those changes might affect the college. The Task Force determined that the primary driver of change in education was technology, and specifically the increasing number of means and ease of access to information. The Task Force also identified the following implications of these changes: (1) the role of educational institutions as time- and place-bound settings will change as distance learning brings increased educational opportunities; (2) the nature and expectations of customers will change as people become more sophisticated in the use of technology; (3) these changes will place a financial burden on institutions to keep pace with advances in hardware/software; (4) the role of faculty will also shift in focus from the delivery of content to value added through human contact, group interaction, discussion, and team learning; (5) faculty will need to become involved in multimedia as consumers and developers; (6) businesses are likely to gain the right to offer credentials by proving competency-based outcomes; (7) the traditional process of funding education based on fixed seat time will have to become more flexible to compete on the open market; and (8) the primary customers for community colleges will be those who do not have access to technology or are not educationally prepared to be independent learners. (KP)

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Dr. Nelle Moore

San Juan College
Task Force on Innovation
1995 Report

By Dr. Nelle Moore, Ph.D.

Introduction

In Fall 1995, San Juan College established an *ad hoc* Task Force on Innovation facilitated by the Director of Institutional Research and Planning. The purpose of the task force was to brainstorm and think creatively about how the paradigm of education is changing and what the implications might be for the college. The task for this group was different in its approach from other strategic planning groups. The group did not focus on incremental improvements in college operations or develop any specific action plans. Instead, the group questioned existing assumptions of education to determine how the changing external environment will challenge the *status quo* in education. The results of the Task Force on Innovation are presented in this report.

San Juan College is a comprehensive community college located in the northwest corner of New Mexico. The college has about 4,200 credit students per semester and 2,200 FTE. In addition, the college enrolls about 10,000 annually in community learning, contract training, adult basic education, literacy, child development, and small business development classes.

What is the Future of Education?

Much of the current discussion in education today deals with the issue of the future direction of education - the new educational paradigm. Some institutions are dealing with this issue due to financial strains, however, a limitation in financial resources is not the primary driver of educational change. With decreased resources, an institution may be driven to do less, but not necessarily to do it differently. The primary driver of change in education is coming from technology.

We have a clearer view into the crystal ball than perhaps anytime previously because the technology that is driving change is already available. In discussions regarding the future, it is possible to speak fairly specifically, and to reach consensus quickly, about the implications for education. We have an uncommon opportunity to prepare and adjust for the future if we choose to take advantage of it.

The aspect of technology development that will drive change in education is accessibility to information. Technology has already begun to affect our ability to access information through CDROM's, fiber optics, interactive television, Internet, and satellite systems. Massive amounts

of information will be globally accessible, delivered directly to the home. Distance learning through interactive video and satellite systems is just beginning to bring increased educational opportunities into rural areas. Correspondence courses and colleges offering degrees through the mail used to be considered substandard education. Now, major universities, such as the University of Maryland and the University of Colorado, are offering long distance courses and degree programs through Mind Extension University. A new "virtual college" sponsored by New York University will soon offer a graduate program entirely through interactive video, directly into students' homes, over high speed telephone lines. A proposed "virtual university" will offer courses exclusively on the Internet. Technology is beginning to challenge the concept of educational institutions as deliverers of information in time-bound and place-bound settings.

Technology will also change the nature and expectations of our customers. Many people will become more sophisticated in information retrieval and in the use of technology. The learning styles of young people are already changing from text-based learning to media-based learning. People with access to technology will become more independent as learners and "surfers" of information systems. They will also develop higher expectations of the quality of the media used to deliver information and will be intolerant of unprofessional or boring presentations. However, those who do not have access to technology will fall farther and farther behind, adding to the polarization of classes and economic levels.

Rapid changes in technology will place a financial burden on educational institutions to keep pace with advances in hardware. Institutions must cautiously analyze major investments in equipment so that they do not invest in a methodology that is shortly abandoned and obsolete. Regular updates of equipment must be planned in the long-term budget. Educational programs will be expected to use the most current equipment and software in use by businesses. Businesses may demand that courses teach to specific hardware or software rather than just to general principles. Faculty will have to keep up with changing technology to keep their curriculum current.

Implications for Education

Changes in technology will impact the role of instructors in educational institutions. The delivery of content will no longer be the primary role for instructors; technology will do it better. Publishing companies, who already drive much of the educational curriculum, will enter the arena of multimedia and distance learning and will likely market their products as replacements for teachers; "Save money through distance learning!" The cost savings is understood to be derived from a decreased instructional payroll. However, faculty who prepare for shifting roles in instruction will not need to worry about their jobs.

Rather than focusing on the transfer of information, instructors will need to focus on value added through human contact. Many people will still need a structured environment to provide the discipline and motivation for completing a course. Instructors can help to motivate students by connecting course content, accessed elsewhere, to the desires and goals of the

students. Instructors will also need to provide ample opportunities for group interaction, discussion, and team learning as well as one-on-one help in understanding the material. Instructors can help students understand course content by providing concept organizers, calling attention to important material, and making connections with concepts already familiar to the students. Students will still need help with developing strategies for sorting through massive amounts of information and for developing appropriate learning strategies. Instructors can also provide individual counseling and guidance on educational and career options and help students to establish personal goals. In most discussions of the new educational paradigm the instructor has been compared to a coach or a mentor, facilitating the educational environment, rather than as the content expert and information deliverer in the old lecture-based paradigm.

Faculty will also need to become more involved in multimedia and distance learning technologies both as consumers and as developers. The beginning stages of distance learning development have used the worst aspects of the old passive/lecture paradigm, even more deadly on video than in person. Students will not tolerate this style of information delivery and will quickly select the slick, Hollywood-style alternatives that will be offered by for-profit businesses and publishers. Distance learning methods are already developing into real-time, interactive classrooms requiring a different kind of class preparation for instructors. Instructors should get involved in developing multimedia and distance learning curricula using solid learning theory and setting high standards for educational programming. Educational programming must be more than entertainment and must use methods that enhance learning rather than distract or detract from learning. Instructors must also learn to select multimedia materials that enhance their courses as they now select textbooks. Instructors can combine state-of-the-art multimedia or distance learning technology materials (high tech) with personal interaction, discussion, and one-on-one help (high touch). Rather than using their time to prepare lecture materials, instructors must be able to facilitate a learning environment that uses a variety of high tech and high touch methods. This combination of high tech and high touch will attract students to the college environment who otherwise could learn the course content in their own homes.

Another area requiring instructor change is the necessity to show the benefits of their courses and programs. The assumption of quality within higher educational institutions is already under attack. As for-profit businesses enter the education arena, advertising the benefits of their courseware, instructors will need to develop and market clear course objectives to attract students. They will also have to develop student outcome assessment measures that demonstrate student competencies at the end of the course or program. It will be essential to articulate educational standards and benefits to a public that will have many more options to choose from and fewer positive assumptions about the benefits of educational institutions.

Besides changing the role of faculty, new technology will impact the processes and funding of educational institutions. So far, educational institutions have a hold on educational delivery through the mechanisms of accreditation and credentialing, but these mechanisms are not untouchable. Accreditation has provided a formal recognition and evaluation process that has publicly proclaimed the viability (not quality) of an educational institution. Credentialing is a social construct through which an individual achieves recognition for completion of a program

of study and readiness for employment. Accreditation and credentialing are both on shaky ground because of increasing dissatisfaction with the product of educational institutions and questioning of the quality of the educational process. Educational institutions have not yet shown, through outcomes assessment or process management, that they are capable of responding to the needs of business for an educated workforce. With changing technologies, businesses are likely to enter into competition with educational institutions and gain the right to offer credentials by proving competency-based outcomes. If educational institutions continue to base their instruction on fixed course schedules and face-to-face seat time, for-profit businesses will have no trouble gaining market share, especially among the non-traditional student population.

Challenges to the structure of educational delivery systems strike right at the heart of funding for public education. Public education funding is based on credit hour production, which is based on classroom contact hours between the instructor and students. Courses are generally one semester long, although short courses are becoming more available. Registration systems are not designed to handle short courses very well and have more difficulty with open-entry/open-exit courses. In other words, traditional education systems hold *time* constant and allow course mastery to vary, assigning grades at the end of the course. Once students have more choice about their learning environment, they are likely to select structures that allow *time* to vary so that they can take whatever amount of time they need to master the material.

Educational delivery structures have held rigidly against change and student need because the state generally pays the greater portion of the bill. However, for community colleges, the state funds only part of the mission of the institution. Continuing education, contract training, and developmental education are funded differently than credit courses. Consequently, these "peripheral" or "marginal" areas are often the areas that are most innovative and most responsive to student needs. The traditional processes of registering students and funding education based on fixed seat time must become more flexible if education is going to compete in an open market that can deliver instruction directly into the home.

Institutional accreditation and the credentialing function of education will be challenged by competency-based instruction offered by for-profit businesses. If students can demonstrate the accomplishment of specific skills obtained through proprietary courseware, the benefit of a college degree will diminish. Traditional educational institutions will need to rethink their purpose in a very different environment. In this context, the ability of educational institutions to offer flexible programs and schedules within a supportive human environment, as well as the ability to match the technology and skill competencies offered by competitors, will be the key to their survival.

Technology will also change the nature of the student/customer that colleges will serve. The elite student will probably continue to attend elite institutions. The middle group of students, however will have greater access to a variety of educational programs and delivery systems through technology, thus eroding the market for traditional, academic programs. The transfer function will likely become marginalized at places like San Juan College while the

current marginal programs of developmental education and contract training will move to the center. Increasingly, the primary customers for community colleges will be those who do not have access to technology and those who are not educationally prepared to be independent learners. Given this shift in the type of student attending college, programs that are likely to increase are those that develop basic skills in reading and math, learning strategies, computer literacy, and employability skills.

Programs that educate the workforce will continue to be important aspects of community colleges as long as they provide cost-effective instruction that meets the needs of businesses and produces results. Contract training and partnerships with businesses, like the Toyota T-TEN program, will still provide useful services to businesses that are unable or uninterested in getting involved in training on their own. However, "just-in-time" learning, on the job, at computer consoles will become increasingly available and will compete directly with contract training. Just like the regular faculty, contract training staff may need to get involved in producing or editing just-in-time training modules to stay competitive.

Preparing for the Future

The new paradigm in education will not happen overnight or all at once. At the same time, the new paradigm is already here. From the standpoint of educational institutions, the old structures will probably endure for many years yet. However, from the standpoint of technology and its related businesses, the new paradigm is already emerging. A recent article in *Byte* (March 1995), a leading computer magazine, had a cover story entitled "New Ways to Learn" that describes many alternative approaches to learning through technologies that are currently available.

Educational institutions should take advantage of the advance notice of pending changes to prepare for the new competencies that will be required in the future. It takes time to build expertise in new areas and time to realign an entire faculty and educational delivery system. New competencies that will be required for faculty lie in four areas, 1) multimedia and technology-based curriculum development, 2) interpersonal skills and group dynamics, 3) competency-based instruction and assessment, and 4) developmental skills strategies.

The model for multimedia development is different from the traditional model of educational delivery that relies on an isolated instructor in the classroom. Development of multimedia courseware is a process that involves talents in many different areas including programming, artistic visualization, curriculum design, learning theory, and content expertise. It is unlikely to find all these skills and interests in one person. Multimedia development is best accomplished by teams of individuals with many talents.

To prepare for the future, colleges should plan to support faculty in learning how to create multimedia curricula by providing 1) multimedia programming expertise, 2) time, 3) incentives, and 4) team support. As a start, San Juan College could identify specific

content areas of expertise to develop into multimedia courseware and market these nationally and internationally. Focusing multimedia development on a few areas of excellence will begin to cultivate the skills of those faculty and gain experience in the new paradigm within a limited scope.

The other three competency areas, i.e., interpersonal skills, competency-based instruction, and developmental strategies, can be developed through a focused professional development plan. Faculty in-services, departmental meetings, mini-grants, faculty travel, and consultants can be used in a strategic way to gradually expose faculty to the concepts and skills that will be useful in a changed educational environment. Personnel reviews can echo the importance that the college places on faculty development in these areas. It is important that the college develop a systematic approach to professional development and communicate clearly the skills and competencies that are important for faculty to acquire. If we begin this process now, the process can occur gently and gradually, allowing time for faculty to adjust and accept a new way of thinking.

The new registration system will require greater flexibility to handle open-entry/open-exit courses and short courses in a context that may not be oriented so much toward transfer and degree attainment. Certificates of course completion may need to be provided more often than degrees, and portfolio validation may become an issue for the registrar. Current programs at the San Juan College that are more like the new paradigm than traditional credit enrollment are Business and Industry Training, Community Learning Center, and the new Instrumentation and Control program. These areas can provide insight into the requirements that the new registration system will likely have to meet.

Public funding for higher education will become even more critical in the future. It is likely that individual students will be expected to bear a greater portion of the cost of education than is now the case, especially as the educational delivery system becomes more individualized. Educational institutions must develop other sources of income to cover the gap between excessive tuition and diminishing state support. New institutional competencies required will likely be in the areas of developing entrepreneurial activities and outsourcing non-mission related activities.

The college should begin to think in terms of packaging and marketing what it does best. The old funding paradigm relies on a faculty member standing in real-time in front of students for a set period of time. This model is an inefficient use of faculty time for a finite amount of funding. The new paradigm will use the time of some faculty to develop courseware products that can be sold repeatedly, providing a renewable source of funding for the college. The college must think in terms of developing and packaging specific training modules rather than offering just the standard array of courses. Faculty should begin to work in project teams to produce a product that can be sold. The college must also recognize itself as an expert in educational design and market its services as designers of educational materials, programs, and assessment. This entrepreneurial approach will require a new way of thinking about the funding of faculty. Perhaps the college should consider developing a variety of faculty titles in order to hire faculty

for different purposes such as curriculum developers, consultants, and student mentors.

Conclusion

Transitions are the most difficult times. They are uncertain, chaotic, and stressful; they are met with resistance by those who do not want to change and frustration by those who are impatient for change. Transitions are times of demise for some organizations and great opportunity for others. That which seems essential can become obsolete, while the "impossible" fringe ideas suddenly become the new way of doing things. The message for survival is, "Pay attention to the fringe." Without throwing out all the traditional things that we do, we can begin to pay more attention to the activities that we do on the margin, encourage more innovation, and begin to incorporate these innovative activities into the central systems of the college. We can anticipate some of the direction of things to come. Let us incorporate some of the new paradigm's approach and activities into the college operation each year so that the transition will be a smooth and natural growth process.

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